

# Impacts of Visitor Spending on the Local Economy: Apostle Islands National Lakeshore, 2004



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## **Executive Summary**

Apostle Islands National Lakeshore hosted 151,881 recreation visits in 2004. Based on the 2004 visitor survey and 26,374 park overnight stays, 7% of the visitors are local residents, 15% are visitors from outside the local area not staying overnight within 30 miles of the park, and 78% are visitors staying overnight in the local area. About 6% of all visitors are camping in the park. Twenty-seven percent of visitors are staying overnight in area motels, 18% are camping outside the park, and 26% are staying overnight on boats, with friends and relatives or other no cost lodging.

The average visitor party spent \$366 within the local region. Visitors reported expenditures of their group inside the park and within 30 miles of the park. On a party trip basis, average spending in 2004 was \$135 for non-local day trips, \$646 for visitors in motels, \$315 for campers staying outside the park, \$352 for campers inside the park, and \$329 for other overnight visitors without lodging expenses. On a per night basis, visitors staying in motels spent \$237 in the local region compared to roughly \$100 per night for campers and other overnight visitors. The average per night lodging cost was \$103 per night for motels, and \$19 for outside campgrounds and \$6 for campers staying inside the park.

Total visitor spending in 2004 within 30 miles of the park was \$15 million. Twenty-two percent of the total spending was for lodging, 21% restaurant meals and bar expenses, and 16% for boat rentals, guide fees, cruise trips and other local transportation. Overnight visitors staying in motels accounted for about half of the spending.

Not all of this spending would be lost to the region in the absence of the park. Thirty percent of visitors cited a reason other than visiting the national lakeshore or recreation as the primary reason for their trip. Only a portion of their expenses can be attributed to the park visit.

Spending directly attributed to the park was estimated by counting all spending for visitors whose primary reason for coming to the area was to visit the park or recreation. The equivalent of one night of spending was counted for non-primary purpose visitors staying overnight in the area. The local visitor spending profile was used for non-primary purpose visitors on day trips. All spending inside the park was attributed to the park, while all spending by local residents outside the park was excluded. These procedures yield a total of \$12 million in spending attributed to the park. This represents 79% of the \$15 million spent by park visitors in the area.

The economic impact of park visitor spending is estimated by applying this spending to a model of the local economy. The local region was defined to include Bayfield and Ashland counties.

Including direct and secondary effects, the \$12 million spent by park visitors supports 264 jobs in the area and generates \$4.9 million in personal income and \$6.8 million in value added. Value added includes wages and salaries as well as profits and rents to area businesses and sales taxes.

Recreation visits increased by 15% in 2005 to 175,245 visitors. Combined with a 6% increase in per visitor spending, total visitor spending increased to \$18.3 million in 2005. The park itself employed 42 people in FY 2005 with a total payroll of \$2.5 million, including payroll benefits. Including secondary effects, the local impact of park operations in 2005 was 57 jobs, \$2.8 million in personal income and \$3.1 million total value added. Including both visitor spending and park operations, the total impact of the park on the local economy in 2005 was 361 jobs and \$11.4 million value added. Park operations account for 16% of the employment effects and 27% of the value added.

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## **Introduction**

The purpose of this study is to document the local economic impacts of visitors to Apostle Islands National Lakeshore (APIS) in 2004. Economic impacts are measured as the direct and secondary sales, income and jobs in the local area resulting from spending by park visitors. The economic estimates are produced using the Money Generation Model 2 (MGM2) (Stynes and Propst, 2000). Three major inputs to the model are:

- 1) Number of visits broken down by lodging-based segments,
- 2) Spending averages for each segment, and
- 3) Economic multipliers for the local region

Inputs are estimated from the Apostle Islands NL Visitor Survey, National Park Service Public Use Statistics, and IMPLAN input-output modeling software. The MGM2 model provides a spreadsheet template for combining park use, spending and regional multipliers to compute changes in sales, personal income, jobs and value added in the region.

## **Apostle Islands National Lakeshore.**

Apostle Islands NL is located along Lake Superior in northern Wisconsin near Bayfield, WI. The local region was defined to include Bayfield and Ashland counties in Wisconsin. The two county region had a population of 31,772 in 2005.

The Wisconsin Department of Tourism estimates total tourism spending in the two county region in 2004 at \$191 million, with roughly two thirds of the spending in Bayfield county and a third in Ashland. A tourism satellite accounting approach based on 2001 IMPLAN files for the two counties puts tourism sales at closer to \$100 million. The \$100 million figure is more consistent with recent reports of sales in lodging, restaurant, and recreation industries for the region<sup>1</sup>.

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<sup>1</sup> The 2002 Economic Census reports \$22.46 million in sales in the accommodations sector for the two counties in 2002. More recent payroll and employment figures for this sector are also consistent with this level of sales. As lodging usually accounts for about 25% of tourism spending, the lodging sales figures would put total tourism spending in the \$90 - \$100 million range for 2004.

The park hosted 151,881 recreation visits in 2004 and 175,245 in 2005. Over eighty percent of the visits fall between June 1 and September 30. In 2004, 55% of the visits were recorded on the mainland and 45% were island visits. The tour boat reported 31,225 visitors in 2004, representing about 20% of all visits. There were 26,374 overnight stays in the park in 2004 in backcountry and group sites (Table 1).

**Table 1. Recreation Visits to Apostle Islands NL, 2004-2005**

Month	Recreation Visits		Overnight stays	
	2004	2005	2004	2005
January	1,074	1,797	0	0
February	5,305	2,329	24	4
March	1,543	2,201	0	0
April	2,135	2,007	22	58
May	5,400	6,498	678	623
June	18,426	16,451	3247	2386
July	41,800	53,739	9190	9617
August	43,393	54,870	9442	10433
September	21,597	18,856	3459	2494
October	9,561	11,846	301	331
November	989	2,490	11	0
<u>December</u>	<u>658</u>	<u>2,161</u>	<u>0</u>	<u>0</u>
<b>Total</b>	<b>151,881</b>	<b>175,245</b>	<b>26,374</b>	<b>25,946</b>

Source: NPS Public Use Statistics

## **Apostle Islands NL Visitor Survey, 2004**

A park visitor study was conducted at Apostle Islands National Lakeshore July 24 – August 1, 2004 (Littlejohn and Hollenhorst, 2005). The study measured visitor demographics, activities, and travel expenditures. Questionnaires were distributed to a sample of 671 visitors at 10 sites in the park. Forty-four percent of the surveys were distributed at visitor centers, 35% on park islands and 21% at Myers Beach on the mainland. Visitors returned 505 questionnaires, a 75% response rate. Data generated through the visitor survey were used as the basis to develop spending profiles, segment shares and trip characteristics for Apostle Islands NL visitors.

Seventy percent of the survey respondents identified visiting the National Lakeshore or recreation as the primary reason for coming to the area.

## MGM2 Visitor Segments

The MGM2 model divides visitors into segments to help explain differences in spending across distinct user groups. Five segments were established for APIS visitors<sup>2</sup>:

**Local day users:** Day visitors who reside within the local region, defined as a 30 mile radius of the park.

**Non-local day users:** Visitors from outside the region, not staying overnight in the area. This includes day trips as well as pass-through travelers, who may be staying overnight on their trip outside the region.

**Motel:** Visitors staying in motels, hotels, cabins, or B&B's within 30 miles of the park

**Camp out:** Visitors staying in private or other public campgrounds within 30 miles of the park

**Camp in :** Visitors camping inside the park.

**Other OVN:** Other visitors staying overnight in the area on boats, with friends or relatives or otherwise not reporting any lodging expenses

The 2004 visitor survey was used to estimate the percentage of visitors from each segment as well as spending averages, lengths of stay and party sizes for each segment. Segment shares estimated in the survey were adjusted to represent year round use and to be consistent with park statistics for overnight stays and cruise boat visitors.

The majority of visitors (78%) were on overnight trips spending at least one night within 30 miles of the park. Seven percent of park visitors in 2004 were local residents and 15% were on day trips from beyond 30 miles. Overnight visitors were divided fairly evenly between motel stays, campers, and other overnight visitors (staying on boats, with friends and relatives or other no cost lodging (Table 2)<sup>3</sup>. The average spending party was 3.1 people.

**Table 2. Selected Visit/Trip Characteristics by Segment, 2004**

Characteristic	Local	Day trip	Motel	Camp out	Camp in	Other OVN	Total
Segment share <sup>a</sup>	7%	15%	27%	18%	6%	26%	100%
Average Party size	2.8	2.8	3.0	3.0	3.0	3.5	3.1
Length of stay (days/nights)	1.0	1.0	2.7	3.1	3.7	3.4	3.1 <sup>c</sup>
Percent primary purpose trips <sup>b</sup>	58%	56%	65%	93%	91%	58%	70%

a. Segment shares estimated in the survey were adjusted to be consistent with park overnight stay data and visitors taking the cruise boat. Fifteen percent of survey respondents reported camping in the park.

b. Trips made primarily to visit Apostle Islands NL or for recreation are considered primary purpose trips.

c. Excluding local visitors and day trips

<sup>2</sup> See Appendix D for breakdowns of visitors between boaters and non-boaters.

<sup>3</sup> Survey respondents who listed motels or campgrounds as lodging types but did not report any lodging expenses were classified in the other OVN category. Some of these may have been staying outside the local region.

Seventy percent of survey respondents indicated that recreation or visiting the national lakeshore was the primary reason for the trip to the area. Thirty percent were visiting relatives, on business, passing through, visiting other attractions or in the area for other reasons. The average stay for overnight trips was 3.1 nights

Apostle Islands NL hosted 151,881 recreation visits in 2004. Recreation visits were allocated to the five segments using the segment shares in Table 2. These visits are converted to 41,763 party trips by dividing by the average party size for each segment and adjusting for some multiple counting of visitors<sup>4</sup> (Table 3). Total visitor spending is estimated by multiplying the number of party trips for each segment by the average spending estimated in the survey.

**Table 3. Recreation Visits and Party Trips by Segment, 2004**

Measure	Local	Day trip	Motel	Camp out	Camp in	Other OVN	Total
Recreation visits	10,899	22,788	41,283	27,082	9,868	39,962	151,881
Party visits/trips <sup>a</sup>	3,839	6,672	11,502	7,523	2,741	9,486	41,763

a. Party trips were estimated by dividing recreation visits by average party size and adjusting for some multiple counting of visitors.

## Visitor spending

Spending averages were computed on a party trip basis for each segment. The survey covered expenditures of the travel party within 30 miles of the park.

The average visitor group in 2004 spent \$366 on the trip<sup>5</sup>. On a party trip basis, average spending was \$69 for local visitors, \$135 for non-local day trips, \$646 for visitors in motels, \$315 for campers staying outside the park, and \$353 for travel parties camping in the park (Table 4). On a per night basis, visitors in motels spent \$237 in the local region compared to about \$100 for campers and other overnight visitors. The average per night lodging cost was \$103 per night for visitors in motels, \$18 for campers outside the park, and \$6 for campers inside the park.

The overall spending average of \$366 is subject to sampling errors of 10% at a 95% confidence level.

<sup>4</sup> Recreation visits were converted to distinct visitors by dividing by a re-entry factor of 1.2. The re-entry factor captures the number of times a visitor might be counted during their stay. The re-entry factor was set to balance the number of cruise passengers and cruise trip receipts estimated in the survey with those reported by the park in 2004.

<sup>5</sup> The average of \$366 is considerably lower than the \$586 spending average in the VSP report (Littlejohn and Hollenhorst 2005) due to the omission of some outliers, treatment of missing spending data, and adjustments to the segment mix to represent year-round visitors. The median spending in the VSP report was \$270.

Visitors spending more than \$2,000 on the trip (26 cases) were excluded in estimating the spending averages. This excludes spending associated with higher end boat charters and guided trips<sup>6</sup>.

**Table 4. Average Visitor Spending by Segment , 2004 (\$ per party per trip)**

	Local	Day trip	Motel	Camp out	Camp in	Other OVN	All Visitors
<b>In Park</b>							
Souvenirs	0.97	0.31	2.50	8.41	5.47	3.59	3.60
Camping fees	0.00	0.00	1.13	14.59	15.34	0.00	3.91
<b>In Community</b>							
Motel, hotel cabin or B&B	0.00	0.00	281.90	0.00	51.76	0.00	79.99
Camping fees	0.00	0.00	1.31	42.16	7.34	0.00	8.35
Restaurants & bars	27.90	34.40	125.68	67.28	64.00	77.98	78.00
Groceries, take-out food/drinks	10.32	28.28	35.06	41.92	35.68	53.80	38.46
Gas & oil	18.48	26.31	39.00	50.91	35.78	58.01	42.54
Local transportation <sup>a</sup>	0.13	4.50	53.50	29.43	43.97	91.61	47.43
Admissions & fees	3.97	5.09	16.66	4.93	5.85	5.19	8.20
Souvenirs and other expenses	7.42	30.29	61.17	39.35	47.31	38.78	42.00
Guide fees <sup>b</sup>	0.00	5.51	27.75	16.26	40.08	0.00	13.87
<b>Grand Total</b>	<b>69.19</b>	<b>134.69</b>	<b>645.66</b>	<b>315.24</b>	<b>352.58</b>	<b>328.97</b>	<b>366.34</b>
Total in park	0.97	0.31	3.63	23.00	20.81	3.59	7.50
Total Outside park	68.23	134.38	642.03	292.24	331.76	325.38	61.30

a. Includes cruise boat trips, unguided sail charters, water taxi, kayak rentals and auto repairs.

b. Includes guided sailboat, kayak and fishing trips.

**Table 5. Average Spending per Night, Overnight Trips (\$ per party per night)**

	Motel	Camp out	Camp in	Other OVN
Motel, hotel cabin or B&B	103.36	0.00	13.88	0.00
Camping fees	0.89	18.58	6.08	0.00
Restaurants & bars	46.08	22.03	17.16	23.11
Groceries, take-out food/drinks	12.86	13.72	9.57	15.95
Gas & oil	14.30	16.66	9.60	17.20
Local transportation <sup>a</sup>	19.62	9.63	11.79	27.16
Admissions & fees	6.11	1.61	1.57	1.54
Souvenirs and other expenses	23.35	15.63	14.15	12.56
Guide fees <sup>b</sup>	10.17	5.32	10.75	0.00
<b>Grand Total</b>	<b>236.74</b>	<b>103.20</b>	<b>94.55</b>	<b>97.51</b>

a. Includes cruise boat trips, unguided sail charters, water taxi, kayak rentals and auto repairs.

b. Includes guided sailboat, kayak and fishing trips.

<sup>6</sup> Seven respondents reported over \$2,000 in local transportation expenses and another four cases reported more than \$2,000 in guide fees. As it is not clear whether higher end boat charters and guided trips were properly represented in the sample, these spending outliers were omitted. The spending estimates are therefore conservative and won't fully capture the impacts associated with large boat rentals and guided trips.

Apostle Islands NL visitors spent a total of \$15 million in the local area in 2004 (Table 6). Total spending was estimated by multiplying the number of party trips for each segment by the average spending per trip and summing across segments.

**Table 6. Total Visitor Spending by Segment, 2004 (\$000s)**

	Local	Day trip	Motel	Camp	Camp in	Other OVN	All Visitors
<b>In Park</b>							
Admissions	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Souvenirs	3.7	2.1	28.8	63.2	15.0	34.1	146.9
Camping fees	0.0	0.0	13.0	109.8	42.0	0.0	164.8
<b>In Community</b>							
Motel, hotel cabin or B&B	0.0	0.0	3,242.5	0.0	141.9	0.0	3,384.4
Camping fees	0.0	0.0	15.0	317.2	20.1	0.0	352.3
Restaurants & bars	107.1	229.5	1,445.7	506.2	175.4	739.7	3,203.6
Groceries, take-out food/drinks	39.6	188.7	403.3	315.3	97.8	510.4	1,555.1
Gas & oil	71.0	175.5	448.6	382.9	98.1	550.3	1,726.4
Local transportation <sup>a</sup>	0.5	30.0	615.3	221.4	120.5	869.0	1,856.8
Admissions & fees	15.2	33.9	191.6	37.1	16.0	49.2	343.1
Souvenirs and other expenses	28.5	202.1	703.6	296.0	129.7	367.9	1,727.8
Guide fees <sup>b</sup>	0.0	36.8	319.2	122.3	109.9	0.0	588.1
<b>Grand Total</b>	<b>265.7</b>	<b>898.7</b>	<b>7,426.6</b>	<b>2,371.5</b>	<b>966.4</b>	<b>3,120.6</b>	<b>15,049.4</b>
Total in park	3.7	2.1	41.8	173.0	57.1	34.1	311.7
Total outside park	261.9	896.6	7,384.8	2,198.4	909.4	3,086.5	14,737.7
Segment Percent of Total	2%	6%	49%	16%	6%	21%	100%

a. Includes cruise boat trips, unguided sail charters, water taxi, kayak rentals and auto repairs.

b. Includes guided sailboat, kayak and fishing trips.

Overnight visitors staying in motels accounted for about half of the total spending. Lodging accounted for 22% of the total spending and restaurants and bars 21%. Boat rentals, cruise trips, guide fees and other local transportation accounted for 16% of the total.

Not all of this spending would be lost to the region in the absence of the national lakeshore as most visitors did not make the trip primarily to visit the park. Spending directly attributed to the park visit was estimated by counting all spending for trips where the park was the primary reason for the trip. If the park visit was not the primary purpose of the trip, one night of spending was counted for overnight trips and the spending average for local day trips was counted for non-primary purpose day trips. All spending inside the park was attributed to the park visit, but all spending by local visitors outside the park was excluded.

These attributions yield a total of \$12 million in visitor spending attributed to the park visit, representing 79% of the overall visitor spending total (Table 7).

**Table 7. Total Spending Attributed to Park Visits, 2004 (\$000s)**

	Local	Day trip	Motel	Camp out	Camp in	Other OVN	All Visitors
<b>In Park</b>							
Souvenirs	3.7	2.1	28.8	63.2	15.0	34.1	146.9
Camping fees	0.0	0.0	13.0	109.8	42.0	0.0	164.8
<b>In Community</b>							
Motel, hotel cabin or B&B		0.0	2,531.7	0.0	132.7	0.0	2,664.4
Camping fees		0.0	13.4	304.5	19.8	0.0	337.7
Restaurants & bars		210.3	1,128.7	481.8	164.1	520.3	2,505.3
Groceries, take-out food/drinks		135.7	314.9	300.2	91.5	359.0	1,201.2
Gas & oil		152.4	350.2	364.5	91.7	387.1	1,346.0
Local transportation <sup>a</sup>		17.1	480.4	210.8	112.7	611.3	1,432.3
Admissions & fees		30.6	149.6	35.3	15.0	34.6	265.2
Souvenirs and other expenses		134.6	553.0	283.3	121.6	263.0	1,355.5
Guide fees <sup>b</sup>		20.5	249.2	116.4	102.8	0.0	488.9
<b>Total Attributed to Park</b>	<b>3.7</b>	<b>703.3</b>	<b>5,812.9</b>	<b>2,269.9</b>	<b>909.1</b>	<b>2,209.3</b>	<b>11,908.2</b>
Percent of all spending attributed to the park	1%	78%	78%	96%	94%	71%	79%

a. Includes cruise boat trips, unguided sail charters, water taxi, kayak rentals and auto repairs.

b. Includes guided sailboat, kayak and fishing trips.

## Economic Impacts of Visitor Spending

The economic impacts of Apostle Islands NL visitor spending on the local economy were estimated by applying the spending attributed to the park (Table 7) to a set of economic ratios and multipliers representing the local economy. Multipliers for the region were estimated with the IMPLAN system using 2001 data. The tourism sales multiplier for the region is 1.36. Every dollar of direct sales to visitors generates another \$ .36 in secondary sales through indirect and induced effects<sup>7</sup>.

Impacts are estimated based on the visitor spending attributed to the park in Table 7<sup>8</sup>. Including direct and secondary effects, the \$12 million in spending attributed to park visitors supported 264 jobs in the area and generated \$4.9 million in personal income and \$6.8 million in value added (Table 8). Personal income covers wages and salaries, including payroll benefits. Value added is the preferred measure of the contribution to the local economy as it includes all sources of income to the area, payroll benefits to

<sup>7</sup> Indirect effects result from tourism businesses buying goods and services from local firms, while induced effects stem from household spending of income earned from visitor spending.

<sup>8</sup> The local economic impact of all \$15 million in visitor spending (Table 6) is reported in Appendix C.

workers, profits and rents to businesses, and sales and other indirect business taxes. The largest direct effects are in lodging establishments, restaurants, local transportation (water taxi, boat rentals and guide fees), and retail trade.

**Table 8. Economic Impacts of Visitor Spending Attributed to the Park, 2004.**

<b>Sector/Spending category</b>	<b>Sales \$000's</b>	<b>Jobs</b>	<b>Personal Income \$000's</b>	<b>Value Added \$000's</b>
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	2,664	66	1,164	1,887
Camping fees	338	2	41	97
Restaurants & bars	2,505	62	1,051	1,186
Admissions & fees	265	7	96	160
Local transportation	1,432	40	731	824
Retail Trade	1,355	31	606	792
Wholesale Trade	204	4	72	126
<u>Local Production of goods</u>	<u>84</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Total Direct Effects</b>	<b>8,847</b>	<b>213</b>	<b>3,760</b>	<b>5,072</b>
<u>Secondary Effects</u>	<u>3,171</u>	<u>52</u>	<u>1,099</u>	<u>1,761</u>
<b>Total Effects</b>	<b>12,018</b>	<b>264</b>	<b>4,859</b>	<b>6,832</b>

## 2005 Update

The spending and impact estimates may be updated to 2005 based on reported recreation visits in 2005. Recreation visits increased by 15% in 2005 to 175,245. The visitor segment mix, party sizes and lengths of stay were assumed unchanged from 2004. Spending averages measured in the 2004 visitor survey were price adjusted to 2005 using Bureau of Labor Statistics price indices for each spending category. Spending averages increased by about six percent in 2005 compared to 2004.

The increase in visits along with a six percent increase in per visitor spending, increased total visitor spending to \$18.3 million in 2005 (Table 9).

**Table 9. Update of Spending Estimates to 2005**

	Local	Day trip	Motel	Camp out	Camp in	Other OVN	Total
Average Spending							
2004	69	135	646	315	353	329	366
2005	75	143	676	335	371	349	388
Total Spending (\$000's)							
2004	266	899	7,427	2,371	966	3,121	15,049
2005	330	1,103	8,974	2,905	1,172	3,816	18,300
Spending Attributed to the Park (\$000's)							
2004	4	671	5,243	2,064	889	2,017	10,888
2005	4	714	5,490	2,191	935	2,138	11,542

The park itself employed 42 people in FY 2005 with a total payroll of \$2.5 million, including payroll benefits. Including secondary effects, the local impact of park operations in 2005 was 57 jobs, \$2.8 million in personal income and \$3.1 million total value added. Including both visitor spending and park operations, the total impact of the park on the local economy in 2005 was 361 jobs and \$11.4 million value added. Park operations account for 16% of the employment effects and 27% of the value added.

## **Study Limitations and Error**

The accuracy of the MGM2 estimates rests on the accuracy of the three inputs: visits, spending averages, and multipliers. Recreation visit estimates rely on counting procedures at the park, which may miss some visitors and count others more than once during their visit. Most of the park is only accessible by boat. While reliable counts are available for visitors using the park tour boat, visitors in private or rental boats are more difficult to count, particularly if not staying overnight at one of the islands.

Visits were divided by a re-entry factor of 1.2 to account for counting of some visitors more than once during their stay. Primary data to estimate the magnitude of the double counting problem did not exist, so the re-entry factor was set to balance the survey data with reported number of cruise trip passengers and cruise trip receipts.

Spending averages are derived from the 2004 Apostle Islands NL Visitor Survey. Estimates from the survey are subject to sampling errors, measurement errors and seasonal/sampling biases. The overall spending average is subject to sampling errors of 10%.

Spending averages also depend on decisions about outliers and treatment of missing data. To estimate spending averages incomplete spending data had to be filled and decisions had to be made about the handling of missing spending data and zero spending reports. Spending averages were estimated under conservative assumptions.

First, cases reporting some expenses but leaving other categories blank were filled with zeros. Thirty-three respondents that did not complete the spending question were assumed to spend no money on the trip. Another seven cases reported no spending in the local area. Omitting cases with missing spending data instead of treating them as zeros would increase the spending average from \$366 to \$395. This change would increase overall spending totals and impacts by about 8% (see Appendix B, Table B1).

Outliers have a larger impact on the spending results. Twenty-six cases reporting expenses of more than \$2,000 were omitted from the spending analysis. Twenty-eight cases reporting party sizes of more than seven people and twelve cases staying more than

ten nights in the area were also omitted<sup>9</sup>. Spending averages including the outliers are \$547 per party, almost 50 percent higher than the \$366 average with outliers omitted.

The sample only covers visitors during a single week. Segment shares were adjusted to an annual basis using park overnight stay data and cruise boat passengers, but otherwise the survey respondents were assumed to be representative of visitors during the rest of the year in order to extrapolate to annual totals.

Multipliers are derived from an input-output model of the local economy using IMPLAN. Input-output models rest on a number of assumptions, however, errors due to the multipliers will be small compared to potential errors in visit counts and spending estimates.

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<sup>9</sup> Reports of spending for long stays are deemed unreliable. Spending reported for large parties may not include everyone in the party. Since spending averages are applied to all visits, omitting these cases is equivalent to substituting the average spending of visitors in the corresponding visitor segment for these outliers.

## Appendix A: Definitions of Economic Terms

Term	Definition
Sales	Sales of firms within the region to park visitors.
Jobs	The number of jobs in the region supported by the visitor spending. Job estimates are not full time equivalents, but include part time positions.
Personal income	Wage and salary income, sole proprietor's income and employee payroll benefits.
Value added	Personal income plus rents and profits and indirect business taxes. As the name implies, it is the net value added to the region's economy. For example, the value added by a hotel includes wages and salaries paid to employees, their payroll benefits, profits of the hotel, and sales and other indirect business taxes. The hotel's non-labor operating costs such as purchases of supplies and services from other firms are not included as value added by the hotel.
Direct effects	Direct effects are the changes in sales, income and jobs in those business or agencies that directly receive the visitor spending.
Secondary effects	These are the changes in the economic activity in the region that result from the re-circulation of the money spent by visitors. Secondary effects include indirect and induced effects.
Indirect effects	Changes in sales, income and jobs in industries that supply goods and services to the businesses that sell directly to the visitors. For example, linen suppliers benefit from visitor spending at lodging establishments.
Induced effects	Changes in economic activity in the region resulting from household spending of income earned through a direct or indirect effect of the visitor spending. For example, motel and linen supply employees live in the region and spend their incomes on housing, groceries, education, clothing and other goods and services.
Total effects	Sum of direct, indirect and induced effects. <ul style="list-style-type: none"> <li>▪ Direct effects accrue largely to tourism-related businesses in the area</li> <li>▪ Indirect effects accrue to a broader set of businesses that serve these tourism firms.</li> <li>▪ Induced effects are distributed widely across a variety of local businesses.</li> </ul>

## Appendix B: Handling of Missing Spending Data and Outliers

To compute spending averages and to sum spending across categories, spending categories with missing spending data had to be filled. If spending was reported in any category, the remaining categories were assumed to be zero. This yielded 465 cases with valid spending data, 7 cases reporting zero spending and 33 cases not completing the spending question. Cases with missing or no spending reported were primarily local residents, day trips, or overnight trips without any local lodging expenses. It was assumed that these cases spent no money in the local area.

**Table B-1. Valid, Zero and Missing Spending Data by Segment**

	Local	Day trip	Motel	Camp out	Camp in	Other OVN	Total
Report some spending	25	62	125	82	71	100	465
Missing spending data	5	6	0	0	3	19	33
<u>Zero spending</u>	3	1	0	0	1	2	7
Total cases	33	69	125	82	75	121	505
Percent zero	9%	1%	0%	0%	1%	2%	1%
Percent missing	15%	9%	0%	0%	4%	16%	7%

Twenty-six cases reported expenses of more than \$2,000 in spending, nine cases reported more than \$3,000 and four cases reported more than \$6,000. High spending cases generally involved long stays of as many as 60 nights or local transportation or guide fees of more than \$2,000.

Twenty-eight cases reporting party sizes of more than seven people and twelve cases staying more than ten nights in the area were also omitted, yielding a final sample of 439 cases for the spending analysis. The overall spending average is \$366 omitting outliers compared to \$547 with outliers.

**Table B-2. Spending Averages by Segment, with and without outliers**

Segment	With outliers			Without outliers			
	Mean	N	Std. Deviation	Mean	N	Std. Deviation	Pct Error <sup>a</sup>
Local	\$ 68	33	117	\$ 69	31	120	61%
Day trip	135	69	245	135	68	247	44%
Motel	763	125	621	646	111	431	12%
Camp	435	82	820	315	74	245	18%
Camp in park	546	75	754	353	59	350	25%
<u>Other OVN</u>	<u>768</u>	<u>121</u>	<u>1,594</u>	<u>329</u>	<u>96</u>	<u>437</u>	<u>27%</u>
Total	547	505	982	366	439	400	10%

a. Pct errors computed at a 95% confidence level

## Appendix C. Impacts of all Visitor Spending, 2004

Table C1 gives the impacts of \$15 million in visitor spending on the local economy. All visitor spending in the region except camping fees inside the park are included in this analysis. Impacts when all visitor spending is included are about a third higher than those in Table 8, when only a portion of the spending on non-primary purpose trips is attributed to the park visit.

**Table C-1. Impacts of all Visitor Spending on Local Economy, 2004**

<b>Sector/Spending category</b>	<b>Sales \$000's</b>	<b>Jobs</b>	<b>Personal Income \$000's</b>	<b>Value Added \$000's</b>
<b>Direct Effects</b>				
Motel, hotel cabin or B&B	3,384	84	1,478	2,397
Camping fees	352	3	42	101
Restaurants & bars	3,204	80	1,343	1,516
Admissions & fees	931	23	336	562
Local transportation	1,857	52	948	1,068
Retail Trade	1,716	39	767	1,003
Wholesale Trade	259	6	92	161
<u>Local Production of goods</u>	<u>108</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Total Direct Effects</b>	11,811	286	5,008	6,808
<u>Secondary Effects</u>	<u>4,229</u>	<u>69</u>	<u>1,463</u>	<u>2,345</u>
<b>Total Effects</b>	16,040	354	6,471	9,152

## Appendix D. Apostle Islands Boater Segments

While the default MGM2 segments are based on lodging types, the MGM2 model can also be used with other segmentations. Use patterns and spending of Apostle Island visitors also varies with modes of transportation. Visitors using boats to access the park incur extra expenses for water taxis, boat fuel, boat rentals and guides. Visitors with larger boats stay overnight on the boat rather than in area motels or campgrounds.

Apostle Island visitors can be divided into four segments based on their transportation modes to access the park. Twenty-one percent of visitors used the commercial cruise tour boat, 20% used kayaks or canoes, 28% used power boats and 31% did not use a boat (Table D1). Segment shares estimated from the survey data were adjusted to be consistent with the official cruise boat visitor counts.

**Table D-1. Selected Visit/Trip Characteristics by Segment, 2004**

Characteristic	No boat	Kayak	Power/sail	Cruise Tour Boat
Segment share	31%	20%	28%	21%
Average Party size	2.7	2.9	3.6	3.0
Length of stay (days/nights)	1.8	3.2	3.1	2.8
Percent primary purpose trips	42%	78%	64%	66%

Visitors not using a boat have shorter stays, come in smaller parties and are more likely to be in the area for reasons other than visiting the park. Visitors taking the cruise boat tour have the highest spending, averaging \$573 per party per trip, including \$80 per party for the cruise

**Table D-2. Average Visitor Spending by Segment (\$ per party per trip)**

Spending category	No boat	Kayak	Power/sail	Cruise
<b>In Park</b>				
Souvenirs	2.64	2.93	3.74	7.30
Camping fees	1.52	12.39	3.96	2.85
<b>In Community</b>				
Motel, hotel cabin or B&B	68.43	63.52	45.88	196.56
Camping fees	6.68	11.78	4.59	15.90
Restaurants & bars	49.11	70.96	94.70	108.21
Groceries, take-out food/drinks	17.53	30.26	68.25	29.89
Gas & oil	19.57	28.77	76.67	35.38
Local transportation (cruise boat, water taxi, kayak rentals, auto repairs)	18.40	18.46	77.40	80.15
Admissions & fees	8.32	6.52	5.80	14.64
Souvenirs and other expenses	22.53	49.83	49.16	62.31
Guide fees (fish, sail, kayak)	1.96	54.62	2.33	20.15
<b>Grand Total</b>	<b>216.70</b>	<b>350.03</b>	<b>432.49</b>	<b>573.33</b>
Total in park	4.16	15.32	7.70	10.15
Total Outside park	212.53	334.72	424.79	563.18

**Table D-3. Average Spending per Day/Night (\$ per party per night)**

Spending Category	No boat	Kayak	Power/sail	Cruise
Motel, hotel cabin or B&B	37.18	20.10	14.70	69.71
Camping fees	4.46	7.65	2.74	6.65
Restaurants & bars	26.69	22.46	30.35	38.38
Groceries, take-out food/drinks	9.53	9.58	21.87	10.60
Gas & oil	10.64	9.11	24.57	12.55
Local transportation (cruise boat, water taxi, kayak rentals, auto repairs)	10.00	5.84	24.81	28.42
Admissions & fees	4.52	2.06	1.86	5.19
Souvenirs and other expenses	13.68	16.70	16.95	24.69
<u>Guide fees (fish, sail, kayak)</u>	<u>1.06</u>	<u>17.29</u>	<u>0.75</u>	<u>7.15</u>
<b>Grand Total</b>	<b>117.75</b>	<b>110.78</b>	<b>138.60</b>	<b>203.33</b>